

WHAT IS CLAIMED IS:

1. A polynucleotide comprising a polynucleotide sequence, wherein said polynucleotide sequence comprises a sequence encoding site III of a lyssavirus glycoprotein, and wherein said polynucleotide sequence does not comprise a sequence encoding an entire lyssavirus glycoprotein.
2. The polynucleotide of claim 1, wherein said polynucleotide sequence further comprises a sequence encoding a transmembrane domain of a transmembrane protein.
3. The polynucleotide of claim 2, wherein said polynucleotide sequence further comprises a sequence encoding a cytoplasmic domain of said lyssavirus glycoprotein.
4. The polynucleotide of claim 1, wherein said polynucleotide sequence comprises a sequence encoding at least the C-terminal half of a lyssavirus glycoprotein.
5. The polynucleotide of claim 4, wherein said polynucleotide sequence further comprises a sequence encoding a transmembrane domain of a transmembrane protein.

6. The polynucleotide of claim 5, wherein said polynucleotide sequence comprises:

- a) a sequence encoding the C-terminal half of a lyssavirus glycoprotein;
- b) a sequence encoding a transmembrane domain of a transmembrane protein; and
- c) a sequence encoding a cytoplasmic domain of said lyssavirus glycoprotein.

7. The polynucleotide of claim 1, wherein said polynucleotide sequence further comprises a sequence encoding a peptide, polypeptide, or protein other than a lyssavirus glycoprotein or a peptide or polypeptide fragment of a lyssavirus glycoprotein.

8. The polynucleotide of claim 7, wherein said sequence encoding a peptide, polypeptide, or protein other than a lyssavirus glycoprotein or a peptide or polypeptide fragment of a lyssavirus glycoprotein encodes an antigenic amino acid sequence.

9. The polynucleotide of claim 8, wherein said antigenic amino acid sequence is a sequence present in a peptide, polypeptide, or protein from a parasite, a bacterium, a virus, or a tumor cell.

10. The polynucleotide of claim 9, wherein said antigenic amino acid sequence is from a parasite.

11. The polynucleotide of claim 10, wherein said parasite is *Plasmodium falciparum*.

12. The polynucleotide of claim 9, wherein said antigenic amino acid sequence is from a tumor cell.
13. An immunogenic composition, comprising the polynucleotide of claim 1.
14. The immunogenic composition of claim 13, wherein said immunogenic composition induces humoral and cellular immunity.
15. The immunogenic composition of claim 13, wherein said immunogenic composition induces a protective immune response.
16. A carrier molecule comprising the polynucleotide of claim 1.
17. An immunogenic composition comprising the carrier molecule of claim 16.
18. The immunogenic composition of claim 17, wherein said composition induces humoral and cellular immunity.
19. The immunogenic composition of claim 18, wherein said immunogenic composition induces a protective immune response.

20. A polynucleotide comprising a polynucleotide sequence, wherein said polynucleotide sequence comprises:

- a) a sequence encoding a site III polypeptide sequence of a lyssavirus glycoprotein;
- b) a sequence encoding a site II polypeptide sequence of a lyssavirus glycoprotein;
- c) a transmembrane domain of a transmembrane protein; and
- d) a cytoplasmic domain of a transmembrane protein.

21. The polynucleotide of claim 20, wherein said polynucleotide sequence further comprises a sequence encoding an antigen other than a site II or site III of a lyssavirus glycoprotein.

22. The polynucleotide of claim 21, wherein said antigen is a tumor antigen.

23. The polynucleotide of claim 21, wherein said antigen is a malaria antigen.

24. A carrier molecule comprising the polynucleotide of claim 21.

25. An immunogenic composition comprising the carrier molecule of claim 24.

26. The immunogenic composition of claim 25, wherein said composition induces an immune response to sequences present in the site II antigen, the site III antigen, or both.

27. The immunogenic composition of claim 25, wherein said composition induces an immune response to sequences present in the site II antigen, the site III antigen, the other antigen, or any combination of these antigens.

28. The immunogenic composition of claim 25, wherein said composition induces humoral and cellular immunity.

29. The immunogenic composition of claim 28, wherein said immunogenic composition induces a protective immune response.

30. A carrier molecule comprising the polynucleotide of claim 20.

31. An immunogenic composition comprising the carrier molecule of claim 30.

32. The immunogenic composition of claim 31, wherein said composition induces an immune response to sequences present in the site II antigen, the site III antigen, or both.

33. The immunogenic composition of claim 31, wherein said composition induces humoral and cellular immunity.

34. The immunogenic composition of claim 33, wherein said immunogenic composition induces a protective immune response.

35. A polypeptide encoded by said polynucleotide sequence of the carrier molecule of claim 30.

36. An immunogenic composition comprising the polypeptide of claim 35.

37. The immunogenic composition of claim 36, wherein said composition induces humoral and cellular immunity.

38. The immunogenic composition of claim 37, wherein said immunogenic composition induces a protective immune response.

39. A polypeptide encoded by said polynucleotide sequence of the carrier molecule of claim 24.

40. An immunogenic composition comprising the polypeptide of claim 39.

41. The immunogenic composition of claim 40, wherein said composition induces humoral and cellular immunity.

42. The immunogenic composition of claim 41, wherein said immunogenic composition induces a protective immune response.

43. A polypeptide encoded by said polynucleotide sequence of the carrier molecule of claim 16.

44. An immunogenic composition comprising the polypeptide of claim 43.

45. The immunogenic composition of claim 44, wherein said composition induces humoral and cellular immunity.

46. The immunogenic composition of claim 45, wherein said immunogenic composition induces a protective immune response.

47. A polypeptide encoded by the polynucleotide of claim 1.

48. An immunogenic composition comprising the polypeptide of claim 47.

49. The immunogenic composition of claim 48, wherein said composition induces humoral and cellular immunity.

50. The immunogenic composition of claim 49, wherein said immunogenic composition induces a protective immune response.

51. A method of treating an individual, wherein said method comprises administering the immunogenic composition of claim 13 to the individual.

52. The method of claim 51, wherein said treating is selected from the group consisting of preventing infection or disease, ameliorating at least one clinical symptom of an infection or disease, and curing an infection or disease.

53. A method of treating an individual, wherein said method comprises administering the polypeptide of claim 47 to the individual.

54. A method of treating an individual, wherein said method comprises administering the polynucleotide of claim 1 to the individual.

55. A method of treating an individual, wherein said method comprises administering the immunogenic composition of claim 17 to the individual.

56. Plasmid pEBL1-PV, deposited as Accession Number I-2114 in the Collection Nationale de Cultures de Microorganismes (CNCM, Paris, France) on December 22, 1998.

57. Plasmid pVIII, deposited as Accession Number I-2115 in the Collection Nationale de Cultures de Microorganismes (CNCM, Paris, France) on December 22, 1998.